What is claimed:

1. A DC-DC converter for converting a first DC voltage to a second DC voltage and supplying the second DC voltage to a load, comprising:

a semiconductor switch device for changing the first DC voltage to the second DC voltage,

means for providing a first feedback control mode and a second feedback control mode, said providing means being connected to the semiconductor switch device, and

control mode selection means connected to the providing means for selecting one of the first feedback control mode and the second feedback control mode, said control mode selection means selecting the second feedback control mode when a load current flowing through the load is below a predetermined value, and selecting the first feedback control mode irrespective of the load current when the second DC voltage supplied to the load changes.

2. A DC-DC converter according to claim 1, wherein said first feedback control mode is a pulse width modulation control mode, and said second feedback control mode is a pulse frequency modulation control mode.

3. A DC-DC converter for converting a first DC voltage to a second DC voltage and supplying the second DC voltage to a load, comprising:

a semiconductor switch device for changing the first DC voltage to the second DC voltage,

oscillating means for generating a triangular wave signal to define a switching frequency of the semiconductor switching device,

amplifying means for receiving an output voltage control signal as a reference voltage and a detected voltage fed back to correspond to the second DC voltage supplied to the load, said

amplifying means amplifying a voltage difference between the output voltage control signal and the detected voltage,

pulse-width-modulation control means connected to the semiconductor switch device, said control means, upon switching between a pulse width modulation control mode and a pulse frequency modulation control mode, comparing the triangular wave signal from the oscillating means and the voltage difference from the amplifying means, and modulating a width of a driving pulse for switching the semiconductor switching device, and

control mode selection means connected to the control means for selecting one of the pulse width control mode and the pulse frequency modulation control mode, said control mode selection means selecting the pulse frequency control mode when a load current flowing through the load is below a predetermined value, and selecting the pulse with modulation control mode irrespective of the load current when the second DC voltage supplied to the load changes.

4. A DC-DC converter according to claim 3, wherein said control mode selection means includes a load current evaluation circuit for determining the load current, and a voltage change detection circuit for detecting a change in the second DC voltage supplied to the load.

5. A DC-DC converter according to claim 4, wherein said voltage change detection circuit detects the change in the second DC voltage supplied to the load based on a change in the output voltage control signal as the reference voltage and a change in an output voltage signal supplied to the load.

6. A DC-DC converter according to claim 4, wherein said voltage change detection circuit detects a change in the second DC voltage supplied to the load based on a balance of the voltage

difference from the amplifying means and a feedback signal fed back to the amplifying means.

7. A DC-DC converter according to claim 3, wherein said amplifying means includes a first analog amplifier circuit formed of a differential amplifier circuit and having a fixed operating point, and a second analog amplifier circuit connected to the first analog amplifier circuit in cascade and having a fixed operating point.

8. A DC-DC converter according to claim 3, wherein said oscillating means generates the triangular wave signal having a oscillation frequency proportional to a difference between the voltage difference amplified by the amplifying means and a first reference voltage when the control mode selecting means selects the pulse width modulation control mode.

9. A DC-DC converter according to claim 3, wherein said oscillating means generates the triangular wave signal having a oscillation frequency proportional to a current flowing through a first resistance circuit connecting a node set at a potential of the difference voltage amplified by the amplifying means and a node set at a first reference voltage when the control mode selection means selects the pulse frequency modulation control mode, and said oscillating means generates the triangular wave signal having an oscillation frequency proportional to a current flowing through a second resistance circuit connecting a second reference voltage and a ground potential when the control mode selection means selects the pulse width modulation control mode.

10. A according to claim 9, wherein said oscillating means is formed of a monitoring circuit for defining a lower voltage limit of the triangular wave signal.

11. A DC-DC converter according to claim 10, wherein in said oscillating means, the first reference voltage is set to be equal to the lower voltage limit of the triangular wave signal defined by the monitoring circuit.

12. A DC-DC converter according claim 10, wherein in said oscillating means, the first reference voltage is set to be higher than the lower voltage limit of the triangular wave signal defined by the monitoring circuit, and a lower voltage limit of an output voltage signal to the load is set to be an output voltage signal when an error amplifier output signal from the amplifying means is equal to the first reference voltage in the pulse width modulation control mode.

13. A DC-DC converter according claim 10, wherein in said oscillating means, the first reference voltage is set to be lower than the lower voltage limit of the triangular wave signal defined by the monitoring circuit, and the triangular wave signal has the oscillation frequency with a lower oscillation frequency limit when an error amplifier output signal from the amplifying means is equal to the lower voltage limit of the triangular wave signal in the pulse frequency modulation control mode.